

REMARKS

The abstract and specification have been amended in order to correct grammatical and idiomatic errors contained therein. No new matter has been added.

The claims have been amended in order to correct grammatical and idiomatic errors contained therein and to more particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Newly presented Claims 5-9 are directed to specific embodiments of the present invention. No new matter has been added.

Claims 1-3 have been rejected under 35 USC 103(a) as being unpatentable over Mitsuo et al. Applicants respectfully traverse this ground of rejection and urge reconsideration in light of the following comments.

The presently claimed invention is directed to a thermally sensitive recording medium comprising an undercoating layer containing a pigment and a binder as main components and a thermally sensitive recording layer containing a colorless or pale color basic leuco dye and a color developing agent, which reacts with the basic leuco dye, as main components on a substrate. The undercoating layer contains carboxymethyl cellulose having an etherification degree of from 0.55 to 0.75 and hydroxyethyl cellulose.

The present invention provides a thermally sensitive recording medium which has an excellent recording sensitivity and can provide a high quality recorded image. In conventional thermally sensitive recording mediums, when a coating liquid for the undercoating layer is coated on a substrate such as paper, water in the coating liquid is easily absorbed into the substrate and causes the development of uneven surfaces on the coated layer which deteriorates the quality of the recorded layer. The present invention avoids these problems and provides a thermally sensitive recording medium which can obtain a high quality recorded image.

In the present invention, it is critical that carboxymethyl cellulose be contained in addition to hydroxyethyl cellulose in providing a superior coated surface. In the present invention, which can be used with ordinary substrates, the use of both carboxymethyl cellulose and hydroxyethyl cellulose, which have different absorbing abilities to pigments, enable an excellent coated surface to be obtained and the coating aptitude of a coating is improved. These features clearly are not shown in the prior art cited by the Examiner.

The Mitsuo et al reference discloses a thermosensitive recording material comprising a support having a low Streckigt sizing degree, an undercoat layer comprising an oil absorbable pigment and a carboxymethyl cellulose and a thermosensitive recording layer coated on the undercoat layer. This reference further discloses that a binder can be used in the undercoat layer and is selected from water-soluble polymers such as starch, casein, polyvinyl alcohol, methyl cellulose, hydroxyethyl cellulose, polyacrylic acid and the like, and latexes such as styrene-butadiene copolymer and methyl methacrylate-butadiene copolymer. The binder is used in an amount of from 7 to 20 parts based on 100 parts of the oil absorbable pigment. It is noted that none of the specific Examples of the thermosensitive recording material of Mitsuo et al disclose the presence of hydroxyethyl cellulose. Additionally, the essential feature of Mitsuo et al is finding a thermally sensitive recording medium for the specified support, i.e., a support having a Streckigt sizing degree of from 5 to 10 seconds and through the use of the carboxymethyl cellulose in the undercoating layer, it is possible to use a low cost support of less than 10 seconds for the thermally sensitive recording medium.

In contrast to Mitsuo et al, the present invention requires both carboxymethyl cellulose and hydroxyethyl cellulose and can be used with an ordinary support. In Mitsuo et al, the binder is used in an amount of from 7 to 20 parts

based on 100 parts of the pigment. In the present invention, as required by Claim 6, the total amount of carboxymethyl cellulose and hydroxyethyl cellulose is limited to 0.5 to 5.0 parts per 100 parts of pigment. Moreover, as shown by the test data contained in the present specification, the use of both carboxymethyl cellulose and hydroxyethyl cellulose gives the thermally sensitive recording medium superior properties. Examples 4-6 correspond to the presently claimed invention and can be compared with Examples 1-3 and Comparative Examples 1-3 in Tables 1 and 2 of the present specification. As shown by these Tables, the thermally sensitive recording medium of Examples 4-6 have a high concentration of recorded part and superior properties with respect to the dehydration amount and quality of image. This is clearly unexpected in light of the prior art cited by the Examiner and establishes the patentability of the presently claimed invention thereover.

The Examiner is respectfully requested to reconsider the present application and to pass it to issue.

Respectfully submitted,


Terryence F. Chapman

TFC/smd

FLYNN, THIEL, BOUTELL	Dale H. Thiel	Reg. No. 24 323
& TANIS, P.C.	David G. Boutell	Reg. No. 25 072
2026 Rambling Road	Terryence F. Chapman	Reg. No. 32 549
Kalamazoo, MI 49008-1631	Mark L. Maki	Reg. No. 36 589
Phone: (269) 381-1156	Liane L. Churney	Reg. No. 40 694
Fax: (269) 381-5465	Brian R. Tumm	Reg. No. 36 328
	Steven R. Thiel	Reg. No. 53 685
	Donald J. Wallace	Reg. No. 43 977
	Sidney B. Williams, Jr.	Reg. No. 24 949

Encl: Replacement Abstract
Clean Substitute Specification
Marked-Up Substitute Specification
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